FIG. 1

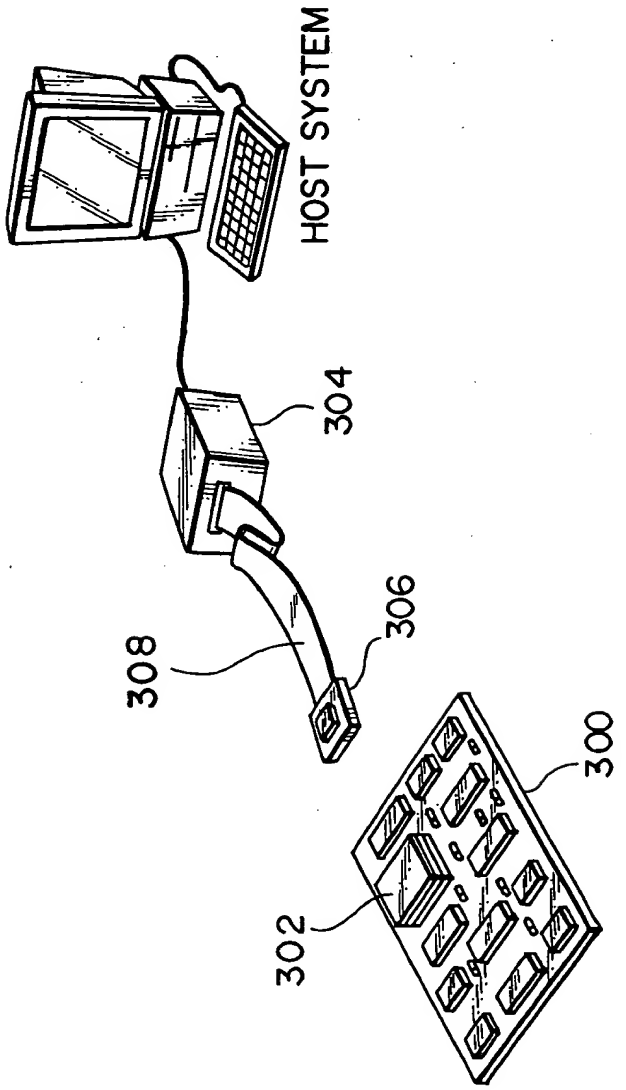

FIG. 2A

USER MODE

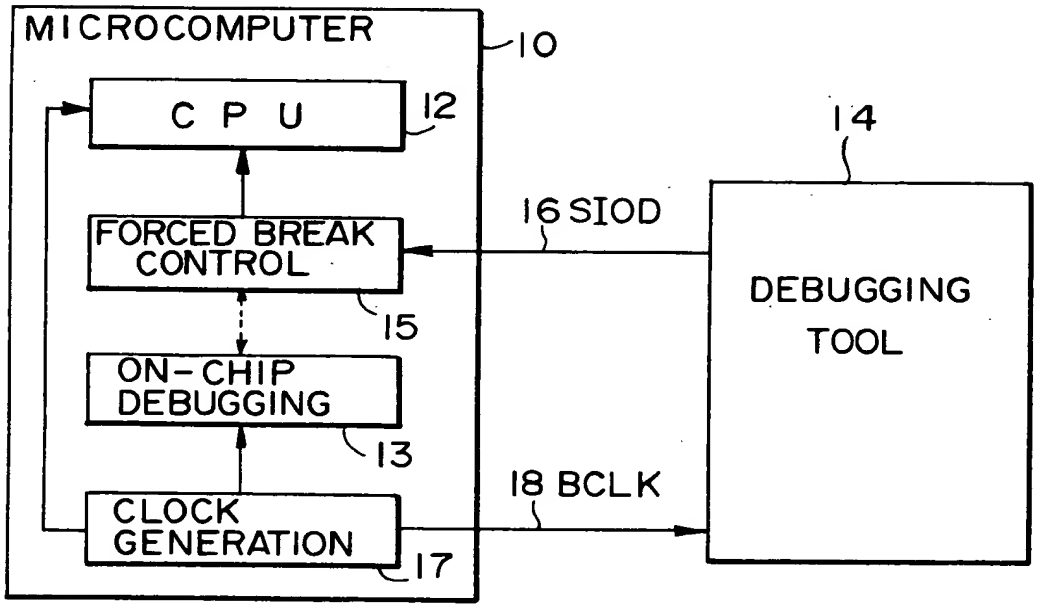

FIG. 2B

DEBUGGING MODE

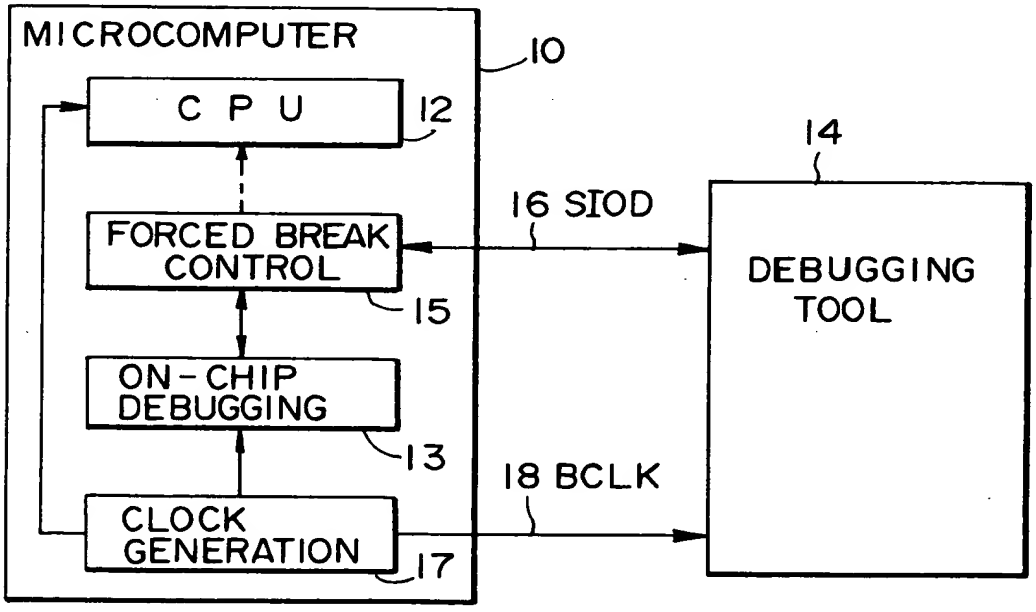

FIG. 3

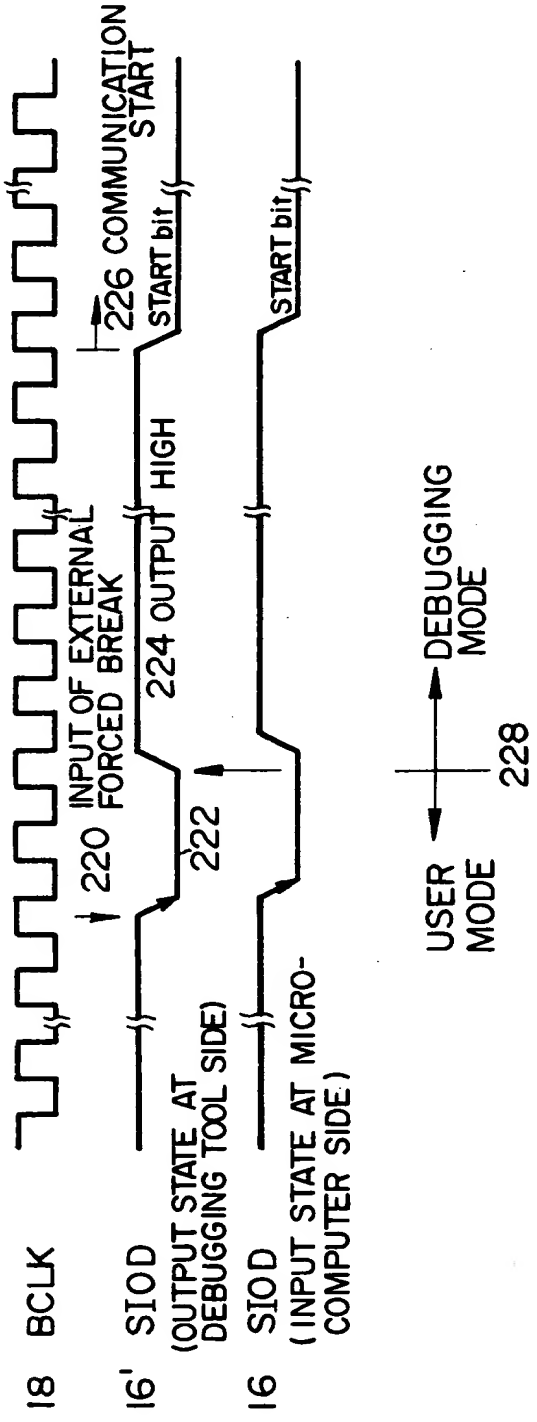

FIG. 4A

WHEN NO DEBUGGING TOOL IS CONNECTED

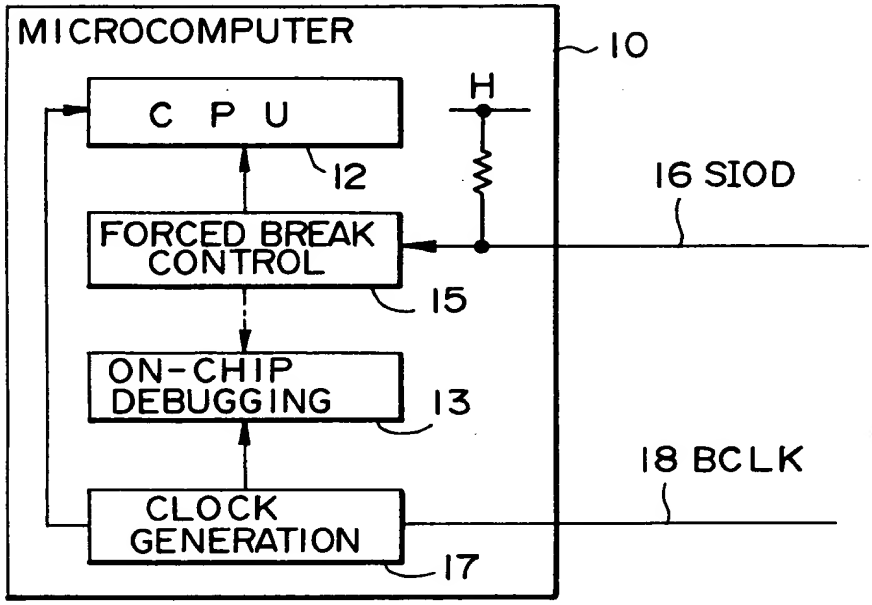

FIG. 4B

WHEN DEBUGGING TOOL IS CONNECTED

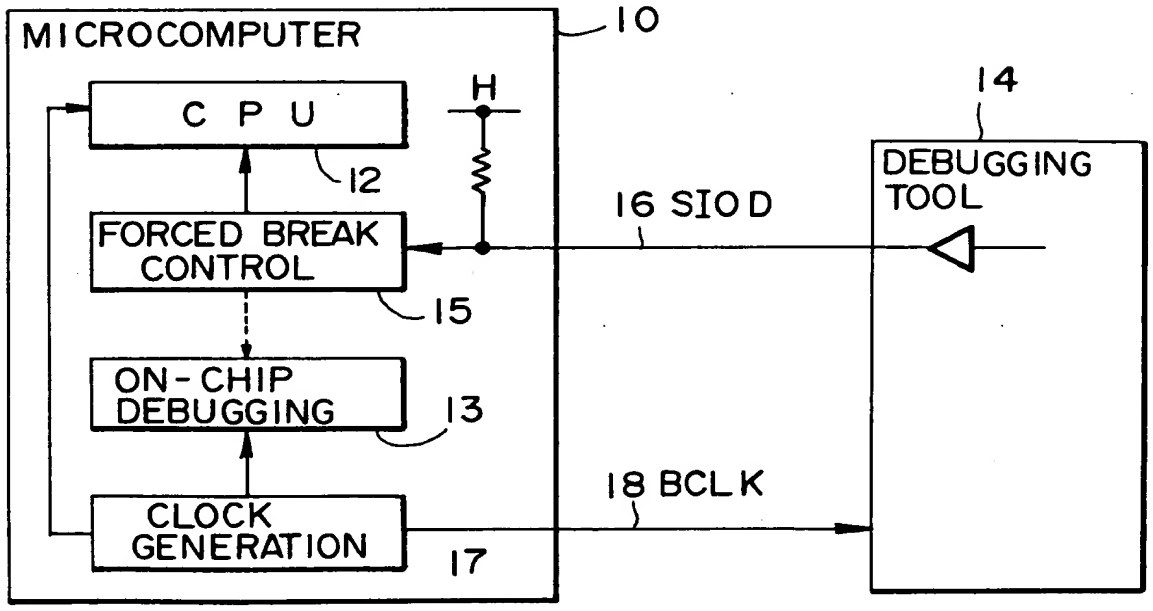

FIG. 5A

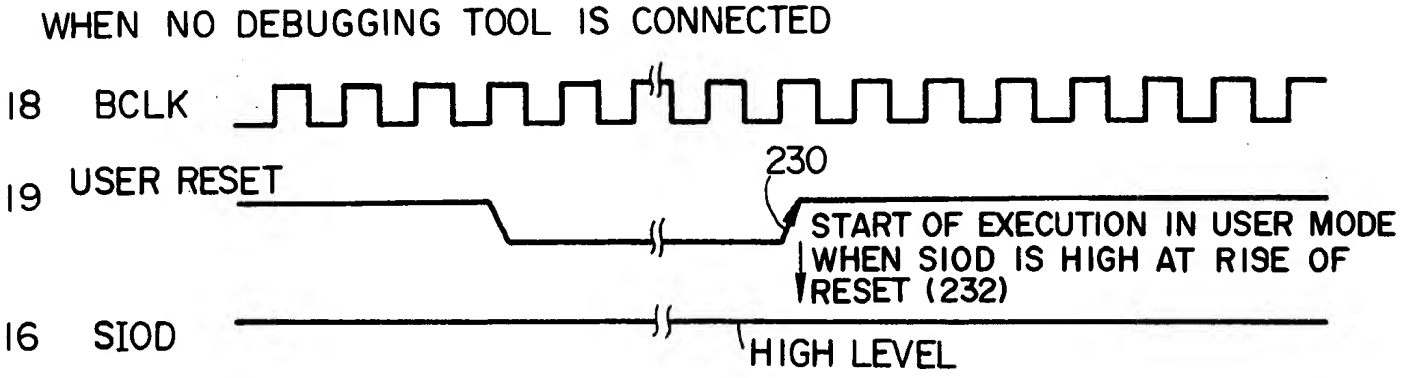

FIG. 5B

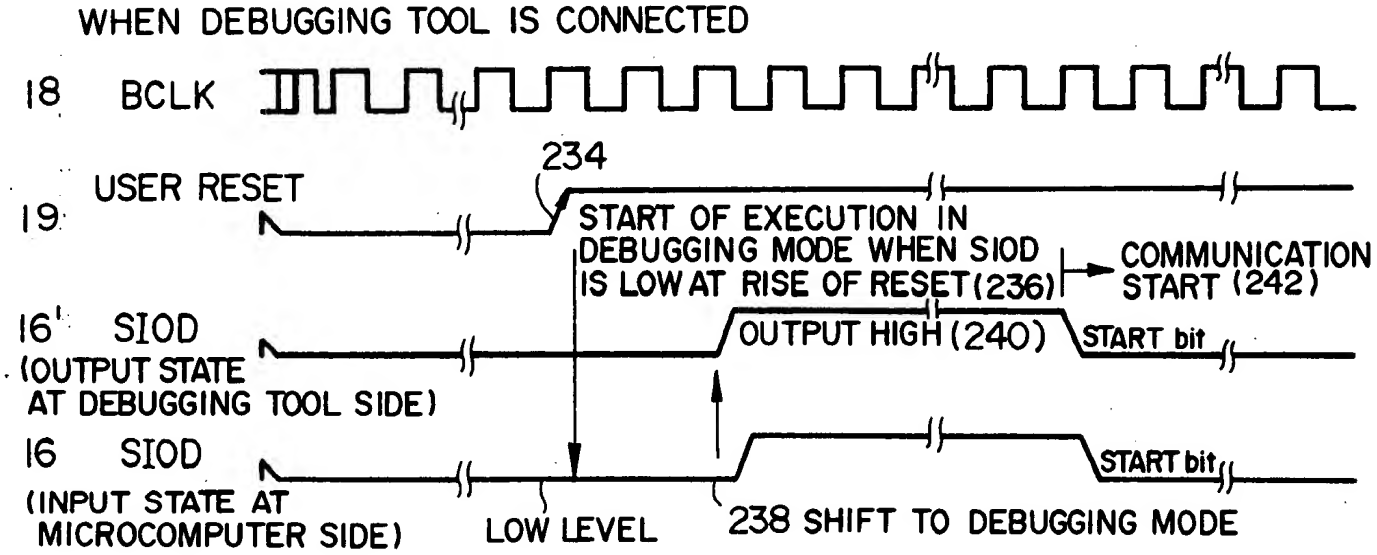

FIG. 6

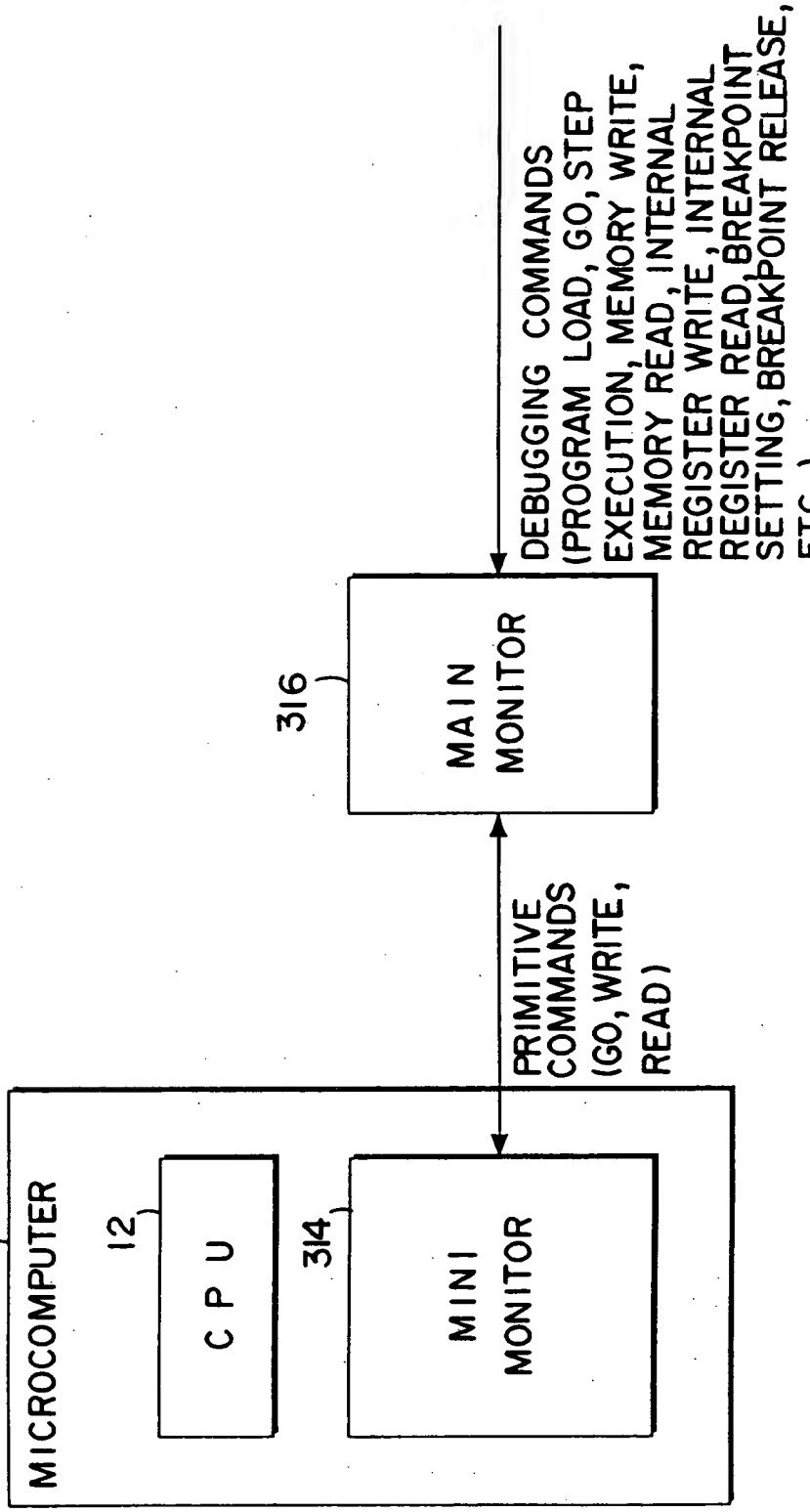
DEBUGGING COMMANDS
(PROGRAM LOAD, GO, STEP
EXECUTION, MEMORY WRITE,
MEMORY READ, INTERNAL
REGISTER WRITE, INTERNAL
REGISTER READ, BREAKPOINT
SETTING, BREAKPOINT RELEASE,
ETC.)
316
MAIN
MONITOR
PRIMITIVE
COMMANDS
(GO, WRITE,
READ)
10
MICROCOMPUTER
12
C P U
314
MINI
MONITOR

FIG. 7

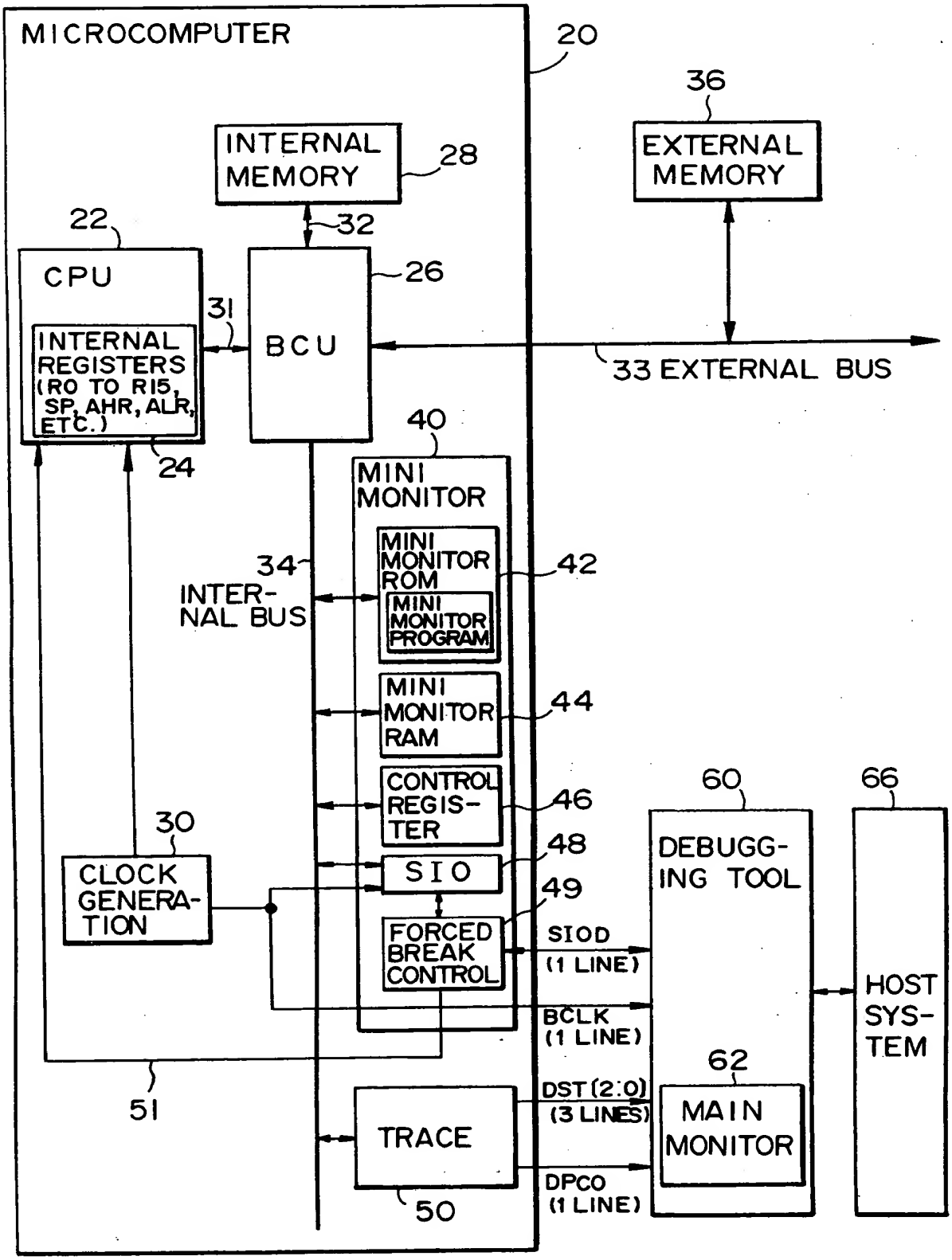
MICROCOMPUTER
20
36
INTERNAL MEMORY
28
EXTERNAL MEMORY
22
32
CPU
26
31
INTERNAL REGISTERS (R0 TO R15, SP, AHR, ALR, ETC.)
BCU
33 EXTERNAL BUS
24
40
MINI MONITOR
34
INTER-NAL BUS
MINI MONITOR ROM
42
MINI MONITOR PROGRAM
MINI MONITOR RAM
44
CONTROL REGIS-TER
46
60
66
30
48
CLOCK GENERA-TION
SIO
DEBUGG-ING TOOL
49
FORCED BREAK CONTROL
SIOD (1 LINE)
HOST SYS-TEM
BCLK (1 LINE)
62
51
DST(2:0) (3 LINES)
MAIN MONITOR
TRACE
DPCO (1 LINE)
50

FIG. 8

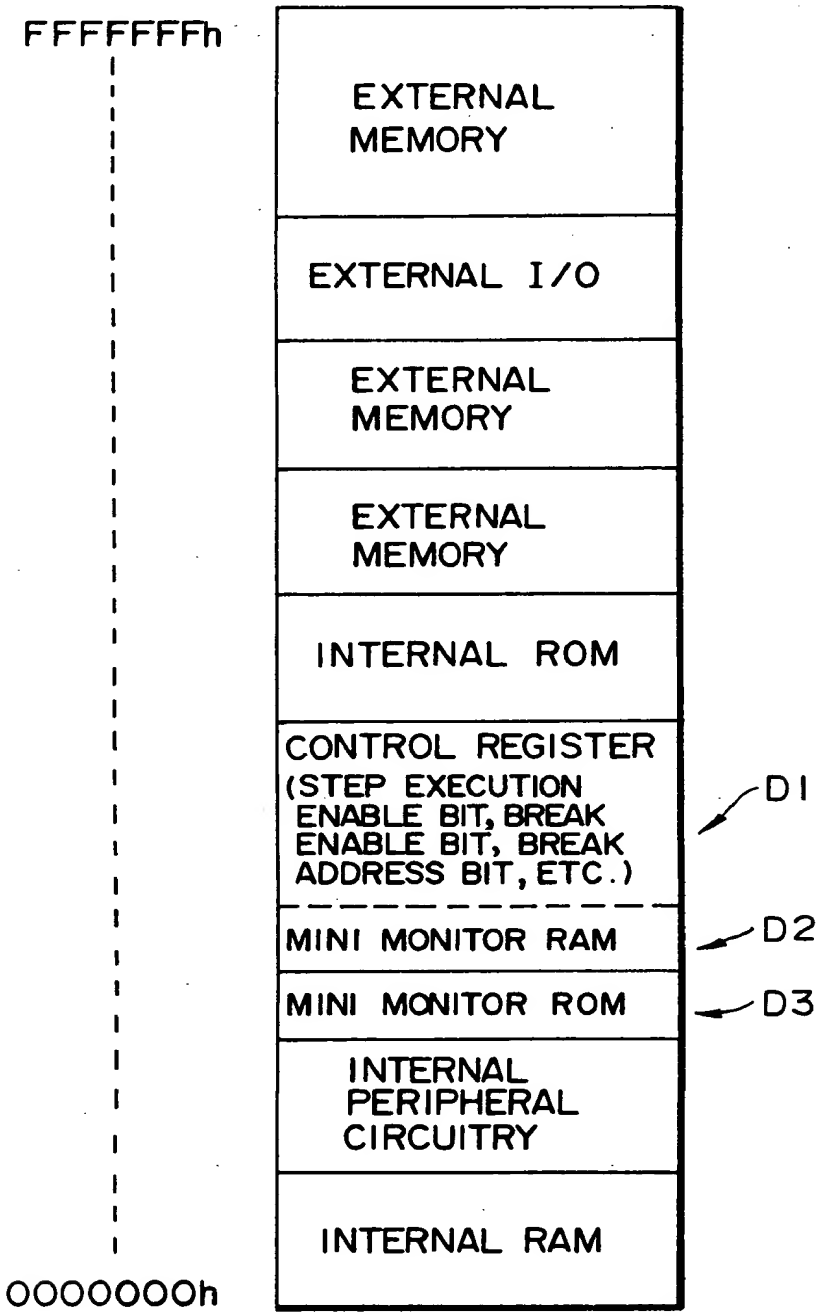

FIG. 9A

PROGRAM LOAD

(80010h, 12 BYTES, ADD---, SUB---
AND---, OR---, XOR---, LD.W---) ⇒ WRITE(80010h, ADD---, SUB---)
+WRITE(80014h, ADD---, OR---)
+WRITE(80018h, XOR---, LD.W---)

FIG. 9B

STEP EXECUTION ⇒ WRITE TO STEP EXECUTION ENABLE BIT OF CONTROL REGISTER
+GO

FIG. 9C

INTERNAL REGISTER READ ⇒ READ OF MONITOR RAM ON MEMORY MAP

FIG. 9D

BREAKPOINT SETTING ⇒ WRITE TO BREAK ENABLE BIT AND BREAK ADDRESS BIT OF CONTROL REGISTER

FIG. 10

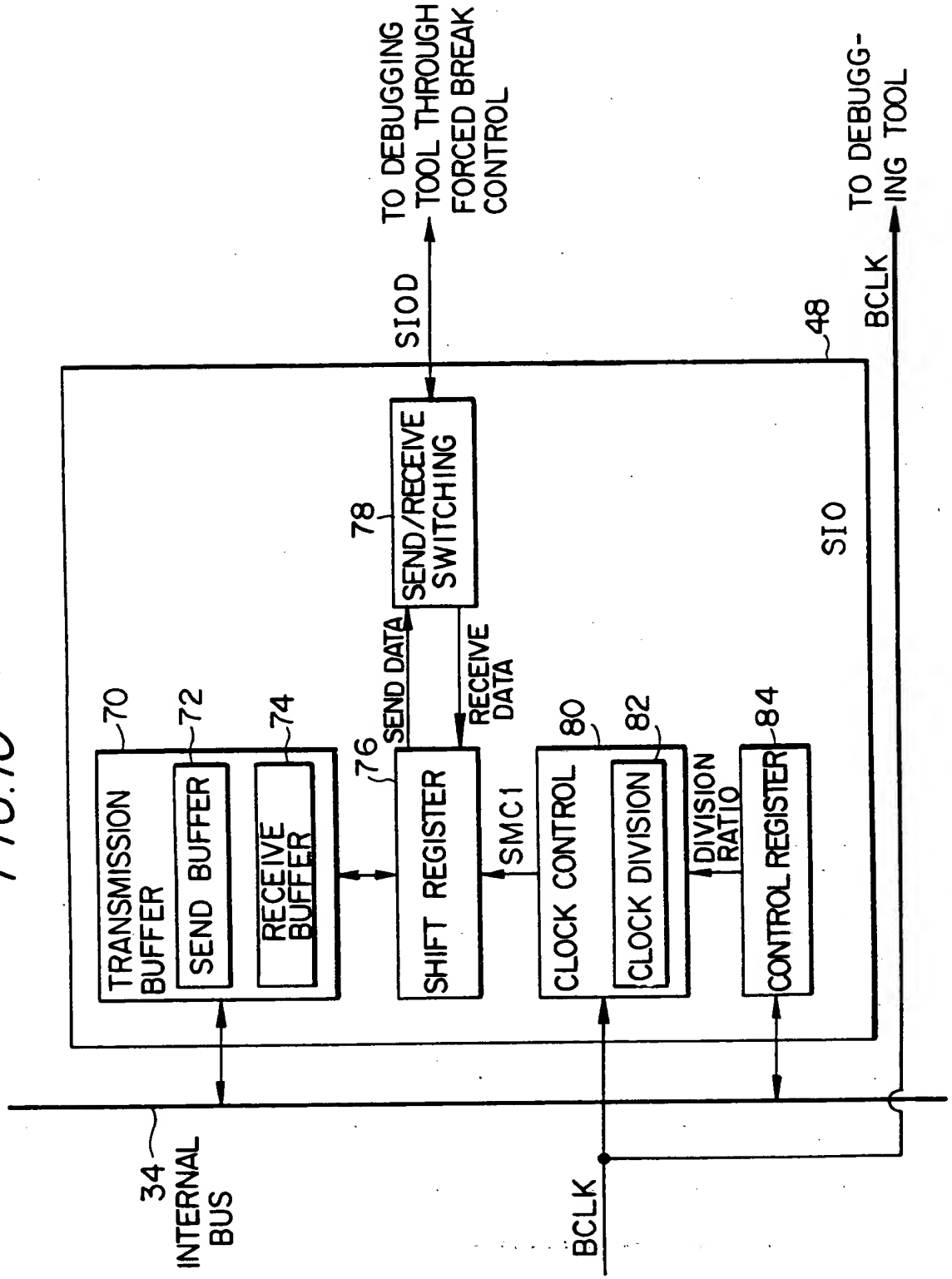
TO DEBUGGING TOOL THROUGH FORCED BREAK CONTROL
SIOD
TO DEBUGG-ING TOOL
BCLK
48
SIO
78
SEND/RECEIVE SWITCHING
SEND DATA
RECEIVE DATA
70
72
74
76
80
82
84
TRANSMISSION BUFFER
SEND BUFFER
RECEIVE BUFFER
SHIFT REGISTER
SMC1
CLOCK CONTROL
CLOCK DIVISION
DIVISION RATIO
CONTROL REGISTER
34
INTERNAL BUS
BCLK

FIG. 11

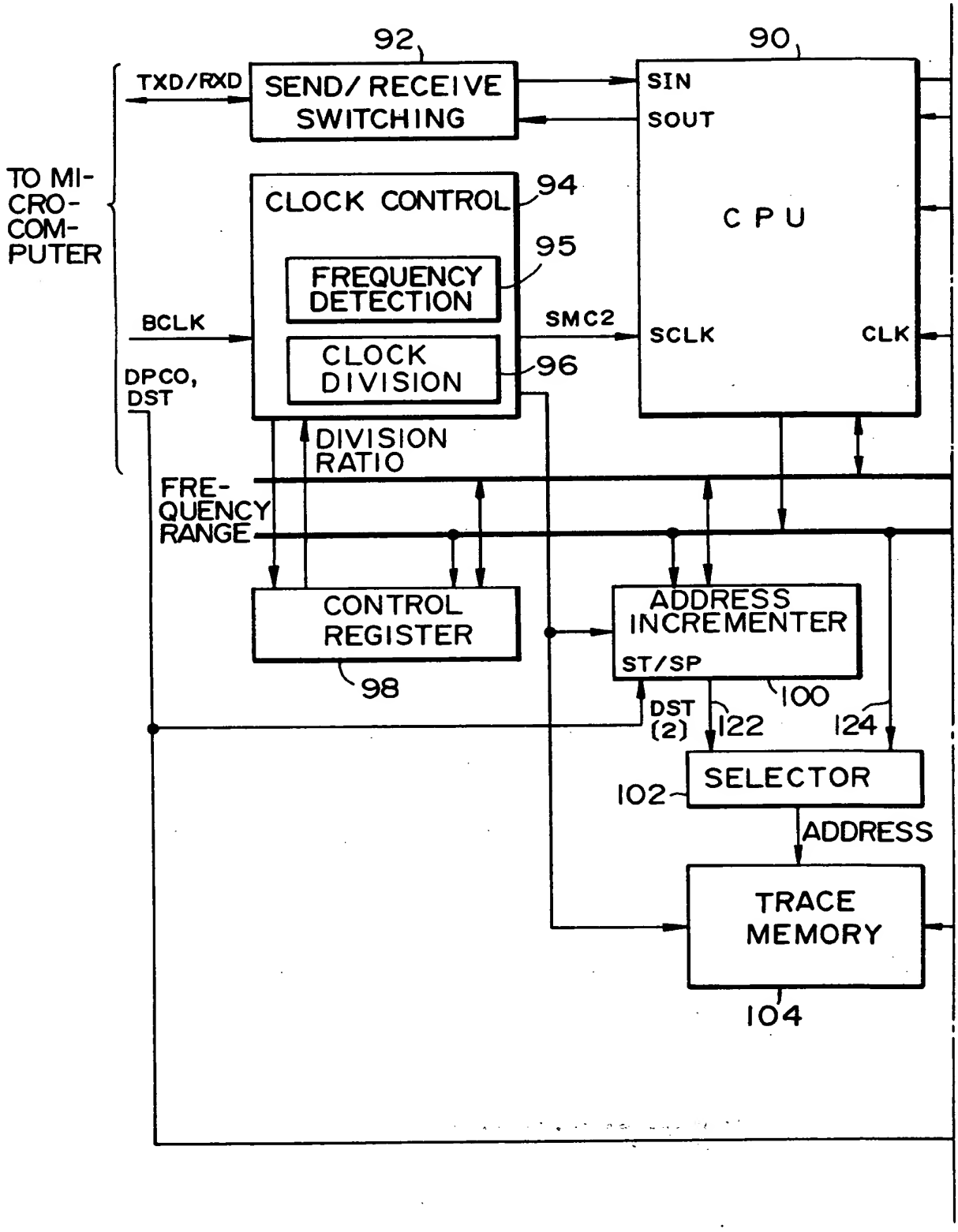

FIG. 11 (con't)

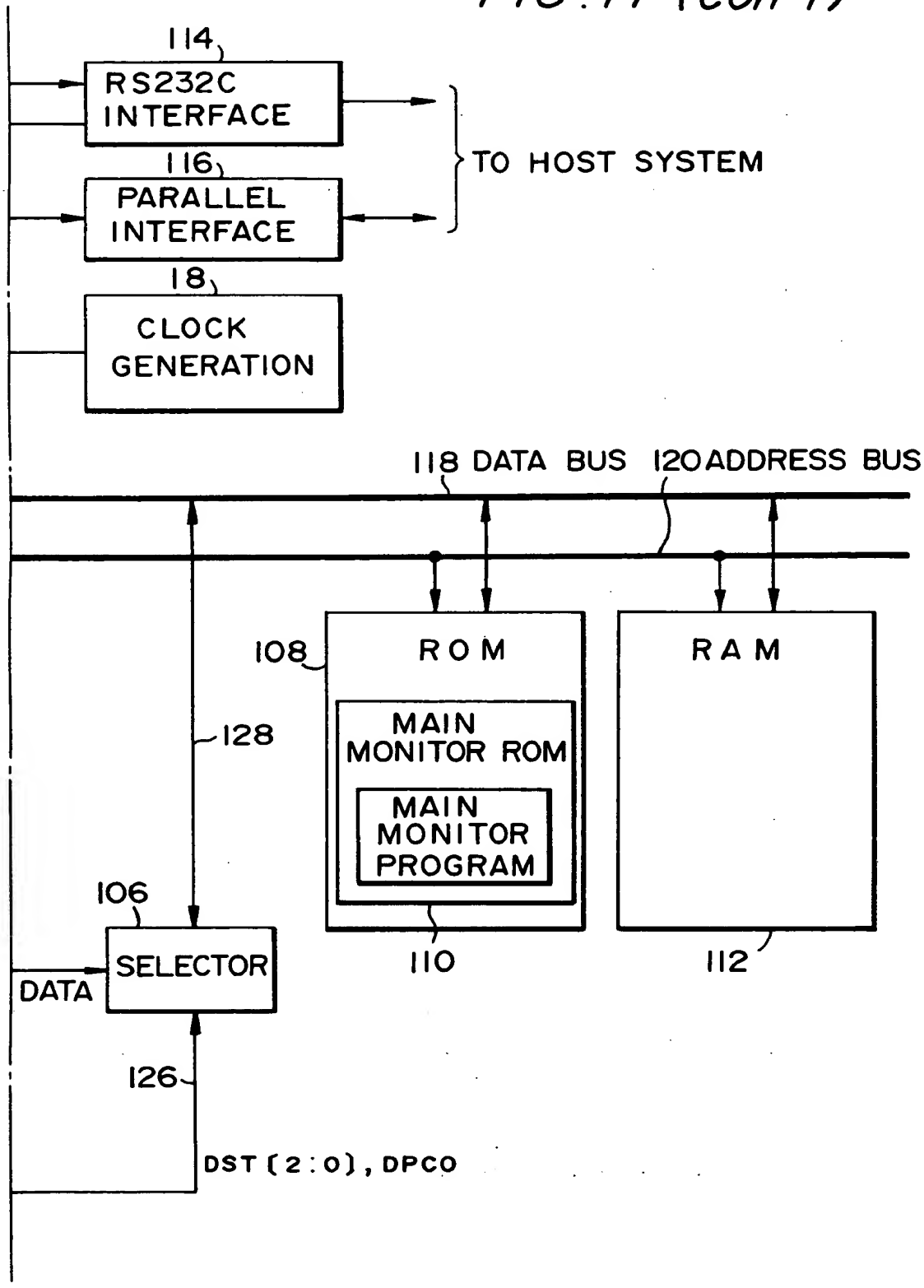

FIG. 12A

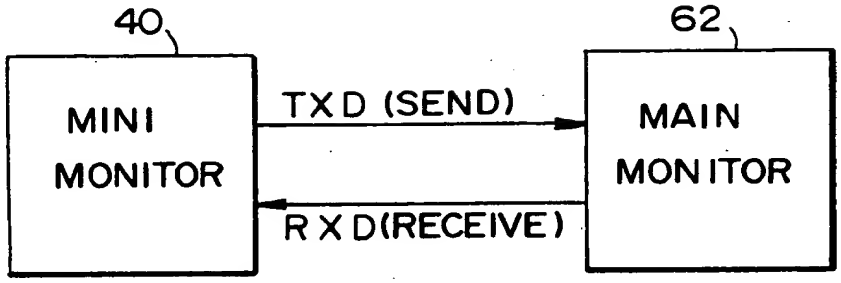

FIG. 12B

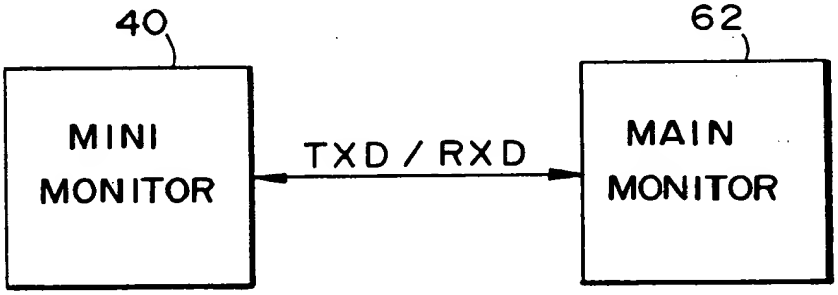

FIG. 12C

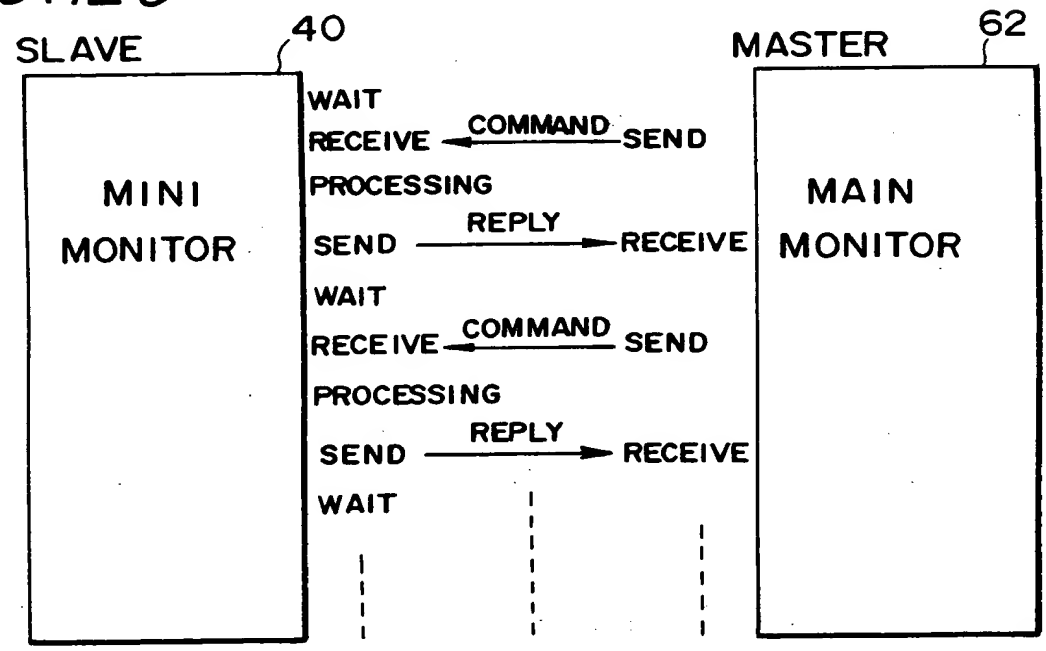

FIG. 13

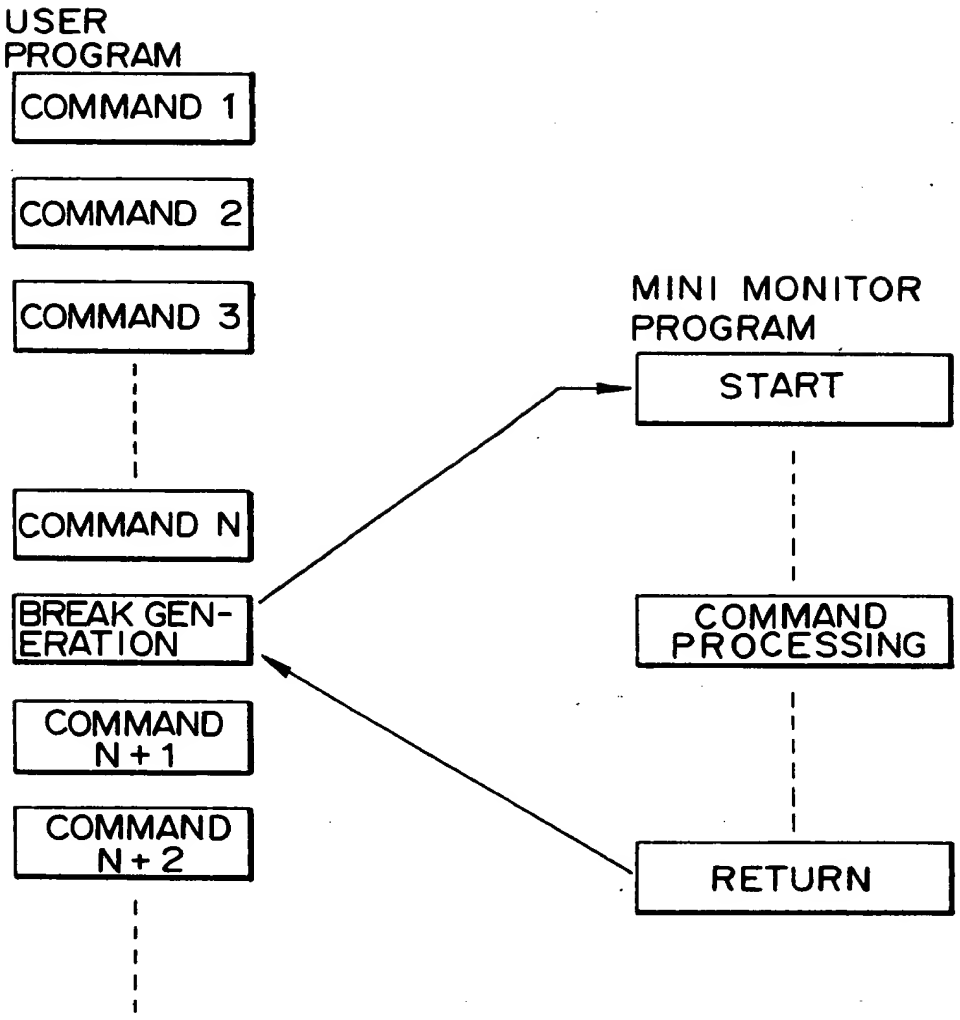

FIG. 14

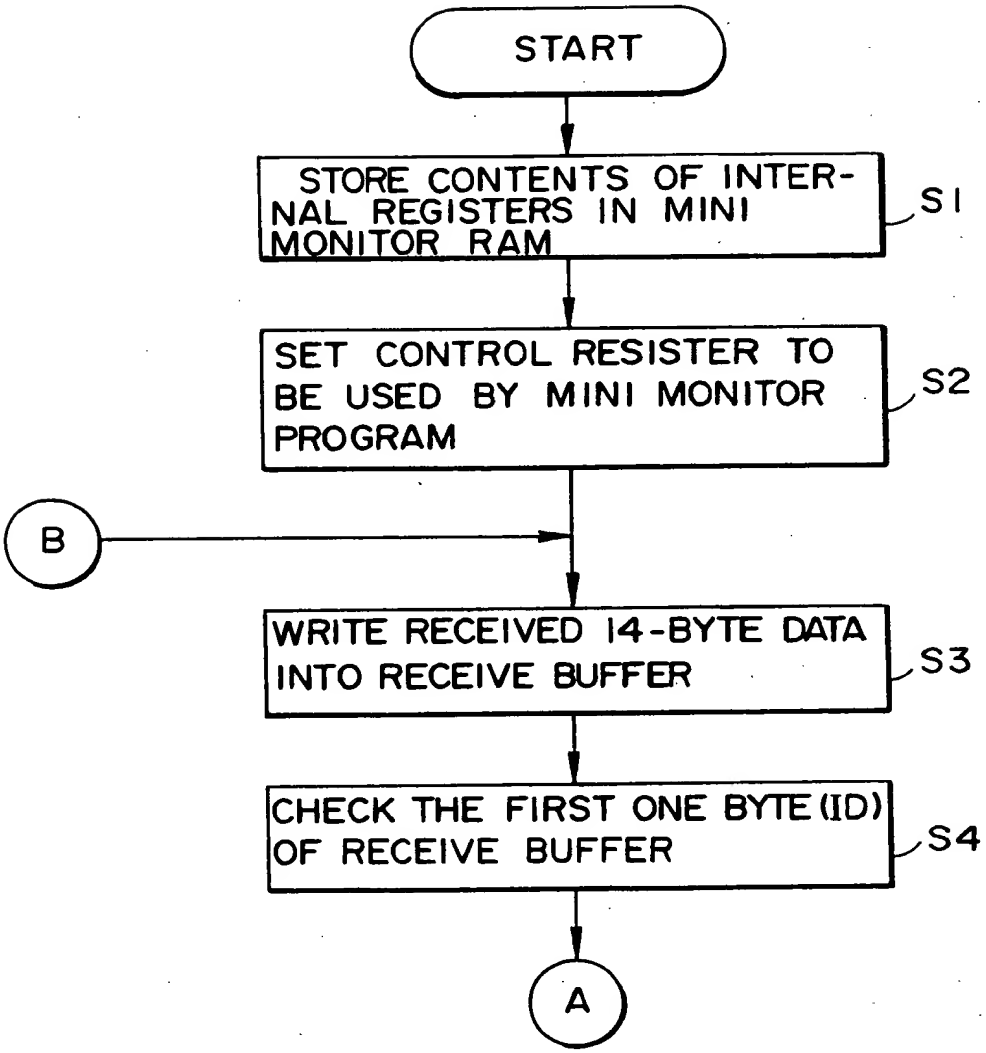

FIG. 15

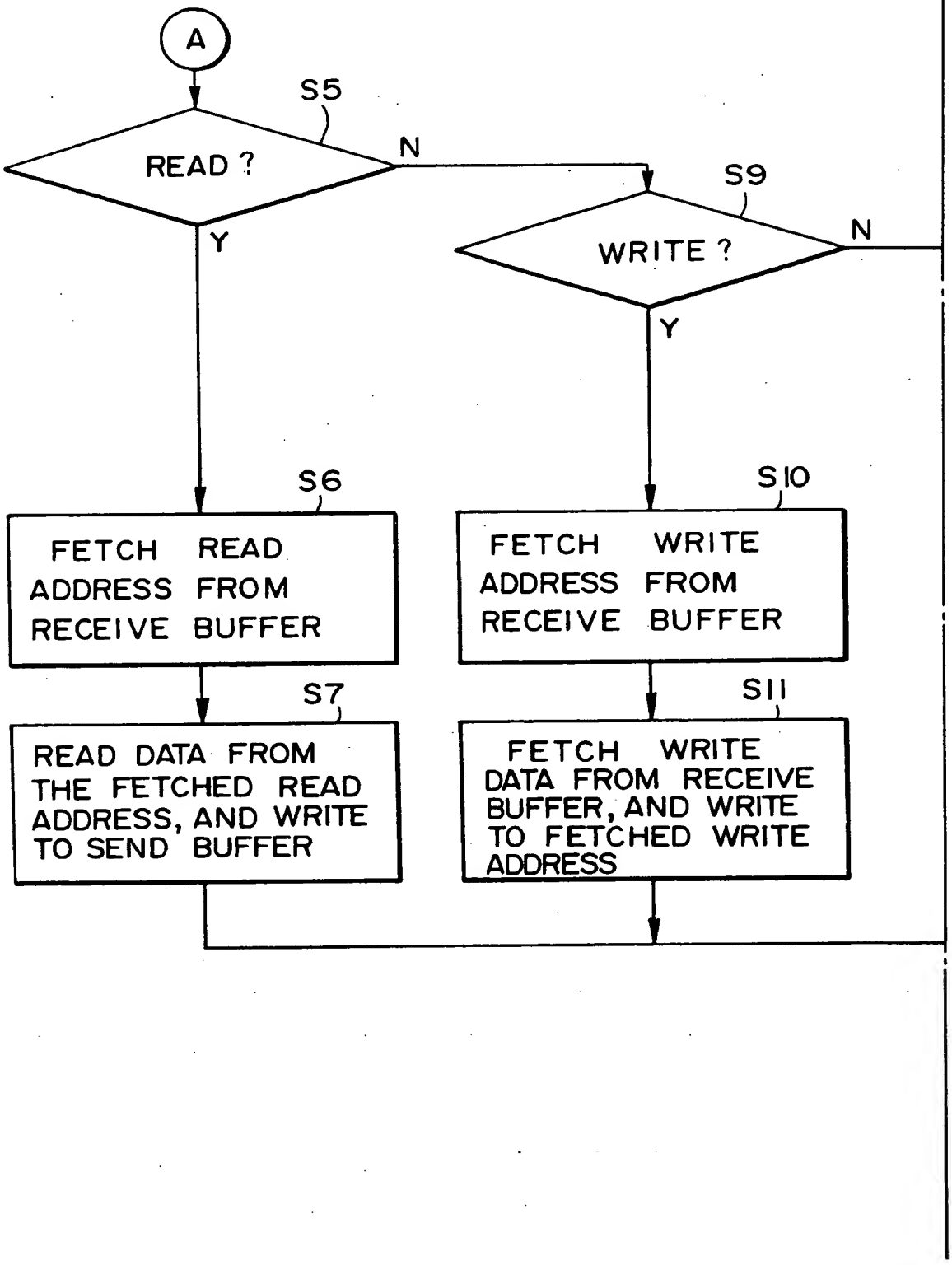

FIG. 15 (con't)

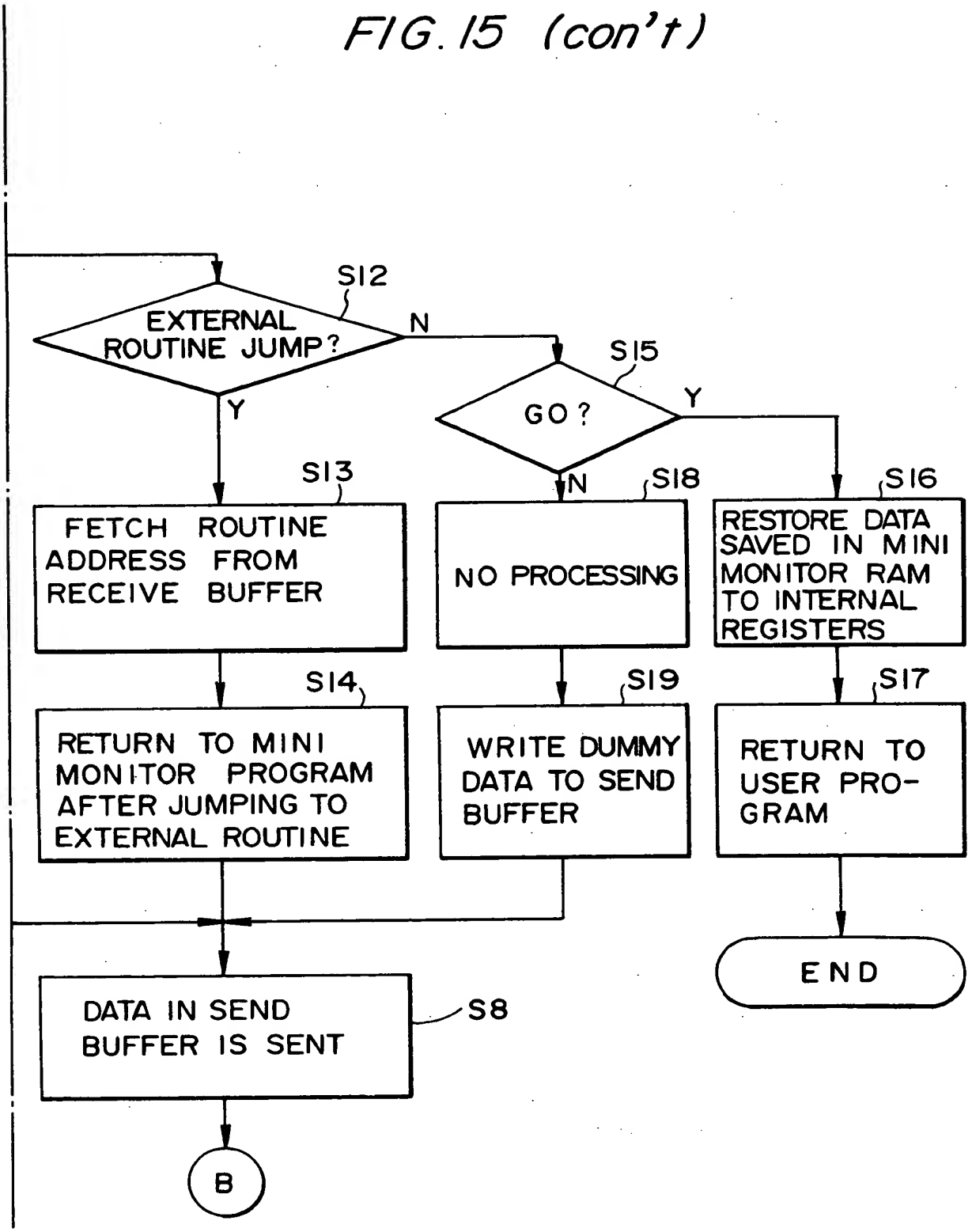

FIG. 16A

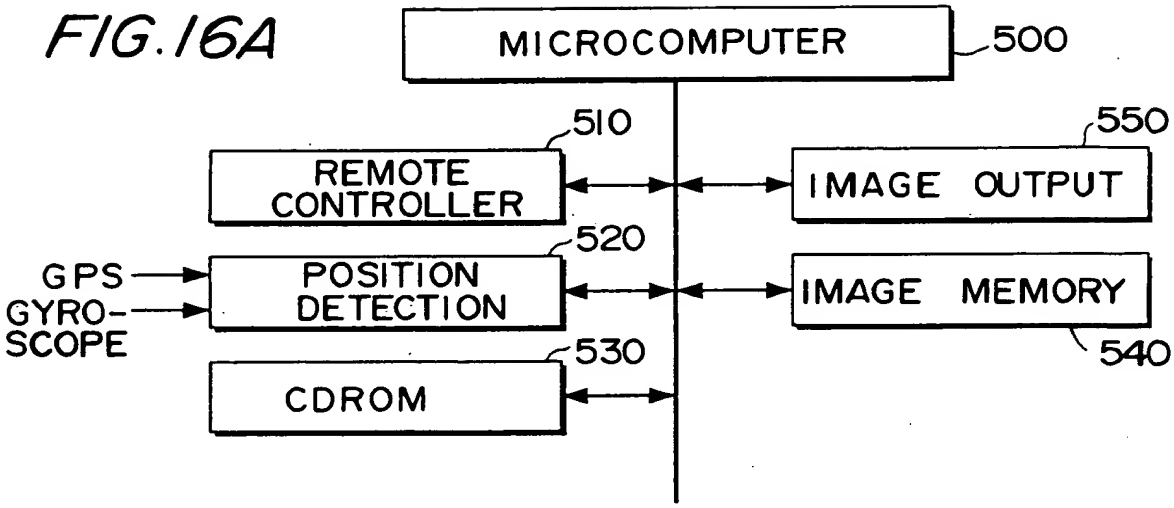

FIG. 16B

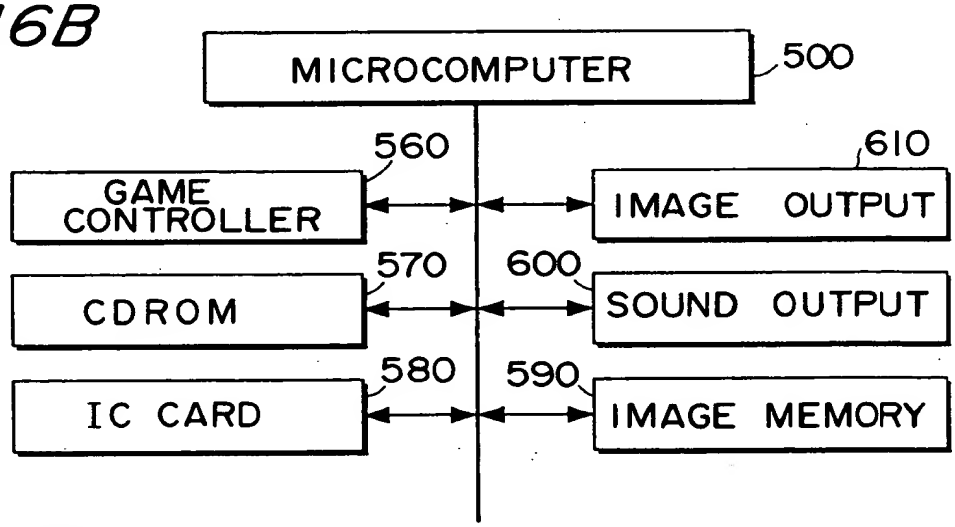

FIG. 16C

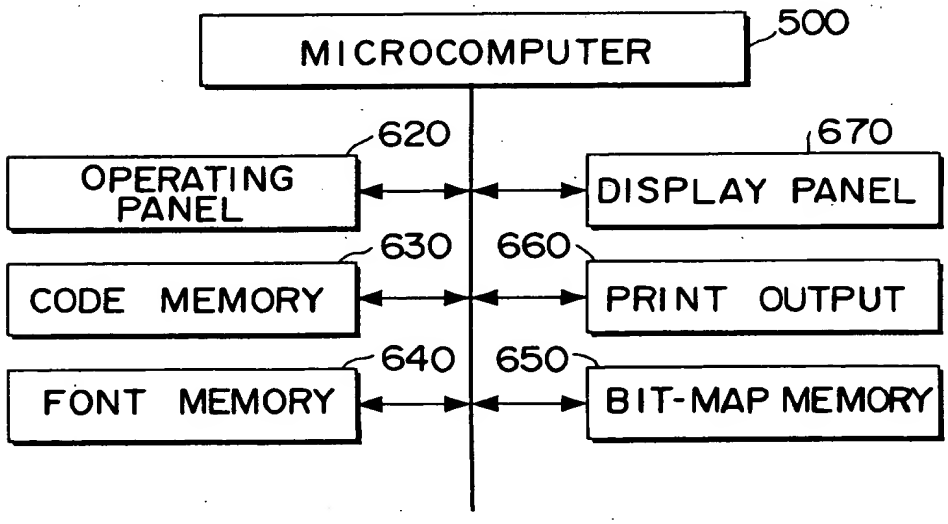

FIG.17A

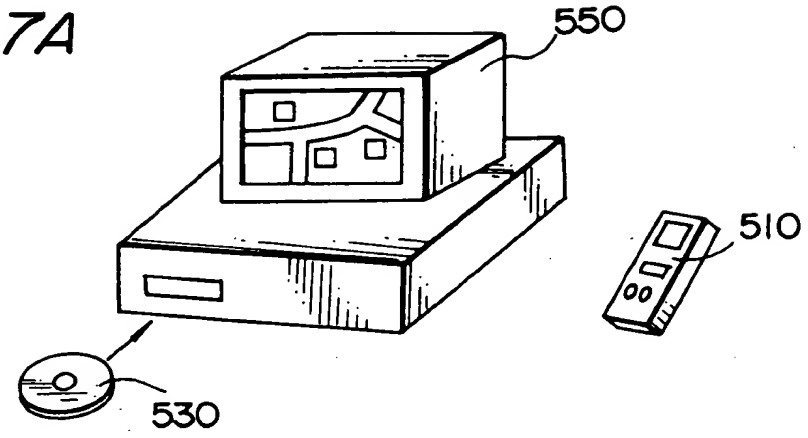

FIG.17B

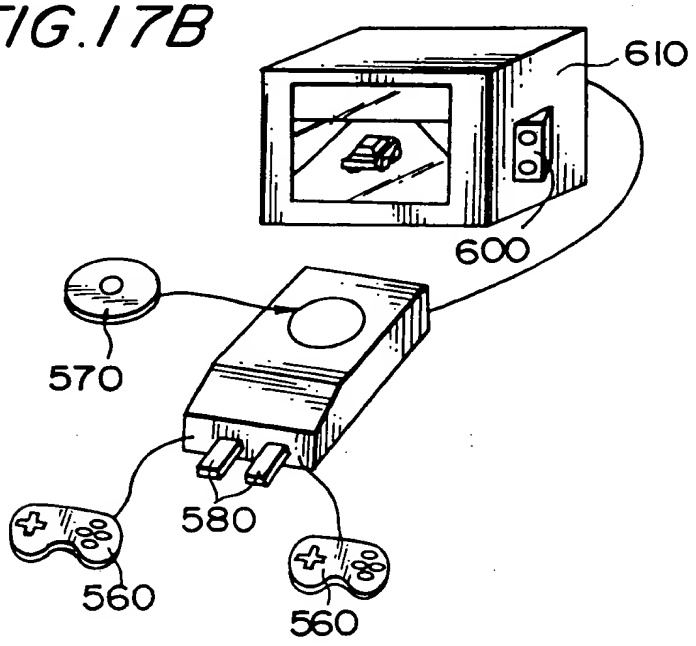

FIG.17C